

REMARKS

By this amendment, applicants have amended the abstract to be a single paragraph and have added new claims 7 - 23 to further define their invention. Claims 7, 8, 15 and 21 are supported by the disclosure at page 1, lines 12 - 13 of applicants' specification. Independent claim 9 corresponds to claim 1, respectively, but specifies that the liquid fluid is a liquid drilling fluid after drilling in a reservoir rock and recites the plastics from which the inner tube can be made in a Markush group. Independent claim 16 defines the present invention in terms of a method for analysis and/or measuring.

Claims 1 - 6 stand rejected under 35 USC 103(a) as allegedly being unpatentable over United States Patent No. 3,615,235 to Hrdina in view of United States Patent No. 5,566,720 to Cheney et al. Applicants traverse this rejection and request reconsideration thereof.

The rejected claims relate to an analysis and/or measuring device comprising means for extracting, in the gaseous form, hydrocarbons contained in a liquid fluid, means for transporting the extracted gases and means intended for analysis and measurement of these extracted gases. The invention is advantageously applied to the analysis of hydrocarbons carried along by a drilling fluid after drilling in a reservoir rock. See, e.g., claim 6. See, also, newly added claims 9 - 23.

The present invention represents an improvement in such an analysis and/or measuring device in that the transport means include a tubular line comprising an inner tube made from plastics material chosen to limit retention of traces of gaseous hydrocarbon. The tubular line is typically several tens of meters long, e.g., 50 meters, separating the wellhead from the analysis and measurement means that are typically

situated in a mud logging shelter separate from the extractor. Retention, adsorption and absorption phenomena in the tubular line can lead to erroneous qualitative analysis results and make quantification difficult or even impossible. See, the paragraph bridging pages 1 and 2 of applicants' specification. By choosing the plastics material from which at least an inner tube of the tubular line is made, applicants can limit the retention, adsorption and absorption phenomena with respect to the trace hydrocarbons. Such is neither disclosed nor suggested by either Hrdina or Cheney et al.

The patent to Hrdina relates to a through-flow reactor which forms a part of an analyzer of substances such as amino acids delivered from a chromatographic column wherein they have been divided into zones having sharp concentration gradients. While the Examiner alleges the Hrdina patent to disclose means for extracting in the gaseous form, it is not clear what element in Hrdina corresponds to the means for extracting, in the gaseous form, hydrocarbons contained in a liquid fluid of the present invention. Thus, the Hrdina patent does not disclose and would not have suggested the analysis and/or measuring device of the present invention, regardless of the choice of plastics material for the tubular line.

Certainly, there is absolutely no suggestion in Hrdina that the through-flow reactor described therein should be used for analysis of hydrocarbons carried along by a drilling fluid after drilling in a reservoir rock. While the Examiner alleges that the reactor of Hrdina "can be used with any gaseous mixture... including hydrocarbons carried along by a drilling fluid after drilling in a reservoir rock," the issue is not whether Hrdina can or can not be used for such a purpose, but whether the prior art suggests

that it be used for that purpose. In this case, none of the prior art suggests that the through-flow reactor of Hrdina should be used for such a purpose.

The patent to Cheney et al relates to an elongated fuel and vapor tube having multiple layers. The tube is disclosed to be for conveying fluids containing hydrocarbons and has an inner surface capable of prolonged exposure to the hydrocarbon-containing fluid made up of a melt processible fluoroplastic terpolymer composed of a polyfluorinated alkylene, and α -fluoro-olefin and a fluorinated vinyl compound. The tube is disclosed to be for use in a motor vehicle, in particular, as a fuel line or vapor recovery line in a motor vehicle. There is absolutely no suggestion in Cheney et al or in any of the prior art to use such a tube with the device of Hrdina or in an analysis and/or measuring device as presently claimed. Accordingly, there would have been no motivation to combine the teachings of Hrdina and Cheney et al in the manner urged by the Examiner. In addition, even the combined teachings of Hrdina and Cheney et al would not have suggested the presently claimed invention since the combined teachings would not have suggested means for extracting, in the gaseous form, hydrocarbons contained in a liquid fluid, as set forth in claims 1 - 5, especially in a drilling fluid after drilling in a reservoir rock, as set forth in claim 6 and newly added claims 7 - 19.


In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all of the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry,

Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 612.40180X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES

IN THE ABSTRACT:

———~~The present invention relates to an~~ An analysis and/or measuring device
~~comprising~~ includes means for extracting, in the gaseous form, hydrocarbons contained
in a liquid fluid, means for transporting said extracted gases, and means intended for
analysis and measurement on these extracted gases.

———The transport means include a tubular line ~~comprising~~ having an inner tube made
from at least one of the following plastics or from mixtures thereof:

———fluoropolymers, such as PTFE,

———fluoroelastomers, such as THV,

———and Ketone polymer type elastomers, such as PEEK.